

# Mineral Industry Surveys

## For information, contact:

John D. Jorgenson, Iron Ore Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4912, Fax: (703) 648-7757  
E-mail: [jjorgenson@usgs.gov](mailto:jjorgenson@usgs.gov)

Amy Tolcin (Data)  
Telephone: (703) 648-7978  
Fax: (703) 648-7975  
E-mail: [atolcin@usgs.gov](mailto:atolcin@usgs.gov)

**Internet:** <http://minerals.usgs.gov/minerals>

## IRON ORE IN SEPTEMBER 2004

U.S. mine production of iron ore in September 2004, on a daily average basis, was 2% higher than that of the prior month, according to the U.S. Geological Survey. Average daily production was 147,000 metric tons per day (t/d), more than 2,000 t/d greater than in August 2004.

Shipments on a daily basis were about 1% lower compared with those of August 2004. Mine stocks at the end of September 2004 were 23% lower than the corresponding stock figures at the end of the previous month.

U.S. imports of iron ore in August 2004 exceeded exports by 18,000 metric tons.

**Exploration and Development.**—Continued strong markets for iron ore are driving an increased interest in mine development. The LNM Group is negotiating with Liberian authorities to re-open the Yekepa iron ore mine, which ceased operation in 1992 (Jones, 2004).

Australia's Fortescue Metals Group Ltd. has agreed to sell Hebei Wenfeng Iron & Steel Co. Ltd. (China) 2 million metric tons per year (Mt/yr) of iron ore for a period of 20 years (Fortescue Metals Group Limited, 2004<sup>1</sup>). Fortescue also signed a 20-year binding agreement with Jiangsu Fengli Group Ltd. (China) to supply the Chinese trading conglomerate 4 Mt/yr of iron ore (Clarke, 2004). These contracts are based upon the development of Fortescue's Christmas Creek deposit in Western Australia, which has recently been assessed to contain 744 million metric tons (Mt) of Marra Mamba-type ore with an average in situ grade of 56.4% iron.

International Minerals Pty Ltd. signed a memorandum of understanding with Wuhan Iron and Steel Group concerning supply of iron ore from a proposed mining operation in Western Australia's Pilbara region. The George Palmer deposit is estimated to contain over 800 Mt of iron ore—sufficient for 30 years of production (Mining Journal, 2004b).

Studies are being conducted into the three-phase development of Companhia Vale do Rio Doce's (CVRD) Serra Sul project. CVRD was planning to spend \$60 million to develop a mine at

Serra Sul and construct a beneficiation plant and necessary road-rail infrastructure (Mining Journal, 2004a).

El Capitan Precious Metals, Inc. continued negotiating the proposed sale of iron ore to a subsidiary of Baosteel Group of Shanghai, China. El Capitan is a development company with a 40% interest in the El Capitan Mine located near Capitan, NM (Business Wire, 2004\$).

**Domestic Production Update.**—Cleveland-Cliffs Inc. announced plans to reactivate a furnace at its Northshore concentrating and pelletizing facilities at Silver Bay, MN. The idled furnace has an annual pellet capacity of about 810,000 metric tons and was scheduled to come back on stream in 2005. The reactivation of this furnace is linked to the development of a full-scale Mesabi Nugget plant scheduled to start up in 2006 at the Cliffs Erie facility near Hoyt Lakes, if permitting and financing can be arranged (Skillings Mining Review, 2004b).

In late August, U.S. Steel Corporation announced plans to expand pellet production at its Keewatin Taconite plant at Keewatin, MN. U.S. Steel has filed a permit amendment required to upgrade production from 5.6 Mt/yr to 6.1 Mt/yr. The permit would allow the company to begin mixing coal and petroleum coke with natural gas in its pelletizing kiln, as it does at its Minntac operation at Mountain Iron, MN (Skillings Mining Review, 2004a).

**World Production.**—Slippage of a 90-meter section of sea wall was reported at Portman Limited's Cockatoo Island joint venture iron ore mine in Western Australia. The slide could prevent the Cockatoo Island operation from reaching its planned production of 1.2 Mt/yr for 2004 (Metal Bulletin, 2004c).

BHP Billiton plc produced 22.5 Mt of iron ore in the quarter ending September 2004, 8% higher than that of the quarter ending September 2003, but lower than planned to reach an end-of-year production capacity of 110 Mt (Metal Bulletin, 2004a).

Hamersley Iron, a wholly-owned subsidiary of the Rio Tinto Group, produced a record 20.9 Mt of iron ore in the quarter ending September 30. Rio Tinto's partially owned subsidiary, Robe River Iron Associates, saw a 4% drop over the same period compared with that of the previous quarter, mainly owing to planned maintenance at its Pannawonica operations (Metal Bulletin, 2004b).

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

Based on United States Generally Accepted Accounting Practices (USGAAP), in the third quarter of 2004, Brazil's CVRD announced that shipments of iron ore and pellets totaled 60.5 Mt, 29.7% more than in the third quarter of 2003 and 8.3% higher than in the second quarter of 2004. In the first 9 months of the year, USGAAP unit shipment volumes of iron ore and pellets reached 169.2 Mt—compared with 130.6 Mt in the first 9 months of 2003, representing an increase of 29.6% (Companhia Vale do Rio Doce, 2004§).

India's Kudremukh Iron Ore Company Limited (KIOCL) posted a record net profit for the first half of the year, based on production of 2.3 Mt of iron ore concentrates and 1.9 Mt of pellets. KIOCL's exports over this period were 0.2 Mt of concentrate and 2.0 Mt of pellets (Press Information Bureau, 2004§).

**Transportation.**—Shipments of 5.6 Mt of iron ore made September another strong month for iron ore trade on the Great Lakes. This was an increase of 16% compared with the year-to-date figures for transport from Upper Great Lakes and St. Lawrence Seaway ports to Great Lakes destinations in 2003. This comparison with 2003 indicates the dramatic change in the U.S. iron ore industry over the past year; however, a better long-term indicator shows a 2.8% increase in Lake transport when comparing September 2004 year-to-date data with average year-to-date figures for the past 5 years (Lake Carriers' Association, 2004).

According to Drewry Shipping Consultants Limited, as of early October 2004 world seaborne shipping rates for iron ore were up between 35% and 40% from a year ago on 100,000 to 150,000 dead-weight-ton shipments from Brazil and South Africa to Western Europe and Chinese ports (Mining Journal, 2004c).

## References Cited

- Clarke, Jo, 2004, Fortescue Metals signs for second Chinese supply deal: Metal Bulletin, no. 8864, October 18, p. 28.
- Jones, Bob, 2004, Iron ore mine tops agenda as LNM talks with Liberia: Metal Bulletin, no. 8865, October 25, p. 10.
- Lake Carriers' Association, 2004, September another busy month for Great Lakes iron ore trade: Lake Carriers' Association, October 29, 1 p.
- Metal Bulletin, 2004a, BHP still on track despite setbacks: Metal Bulletin, no. 8865, October 25, p. 40.
- Metal Bulletin, 2004b, Rio Tinto's output hits record high: Metal Bulletin, no. 8865, October 25, p. 40.
- Metal Bulletin, 2004c, Sea wall fails at Portman's Cockatoo iron ore mine: Metal Bulletin, no. 8860, September 20, p. 9.
- Mining Journal, 2004a, CVRD plans Serra Sul: Mining Journal, September 24, p. 8.
- Mining Journal, 2004b, More Chinese Australian iron-ore agreements: Mining Journal, October 22, p. 8.
- Mining Journal, 2004c, Shipping rates: Mining Journal, October 15, p. 7.
- Skilling's Mining Review, 2004a, Keewatin Taconite looks at capacity expansion: Skilling's Mining Review, v. 93, no. 9, September, p. 25.
- Skilling's Mining Review, 2004b, Northshore fires up Silver Bay furnace: Skilling's Mining Review, v. 93, no. 10, October, p. 3.

## Internet References Cited

- Business Wire, 2004 (October 27), El Capitan Precious Metals provides updating information regarding Baosteel, AFC, Phoenix, Arizona, Business Wire news release, 1 p., accessed November 11, 2004, via URL <http://home.businesswire.com/>.
- Companhia Vale do Rio Doce, 2004 (November 10), The performance of Companhia Vale do Rio Doce in the third quarter 2004, Rio de Janeiro, Brazil, Companhia Vale do Rio Doce media release, 19 p., accessed November 12, 2004, via URL <http://www.cvr.com.br/>.
- Fortescue Metals Group Ltd., 2004 (October 6), Fortescue Metals breakthrough contract with international steel mill, West Perth, Western Australia, Fortescue Metals Group Ltd. media release, 3 p., accessed November 10, 2004, via URL <http://www.fmg.com.au>.
- Press Information Bureau, 2004 (November 10), Kudremukh Iron Ore Company posts highest ever net profit of RS.230.56 crores, Press Information Bureau, Government of India news release, accessed November 12, 2004, via URL <http://www.pib.nic.in/>.

TABLE 1  
U.S. PRODUCTION AND SHIPMENTS OF IRON ORE<sup>1,2</sup>  
(Exclusive of ore containing 5% or more of manganese)

(Thousand metric tons)

Period	Production		Shipments	
	Monthly	Year to date	Monthly	Year to date
2003:				
September	3,870	36,400	4,220	33,800
October	4,190	40,600	4,370	38,200
November	4,140	44,700	4,540	42,700
December	3,740	48,500	5,170	47,900
2004:				
January	4,270	4,270	3,920	3,920
February	4,230	8,500	1,190	5,100
March	4,130	12,600	2,710	7,810
April	4,630	17,300	5,260	13,100
May	4,800	22,100	5,300	18,400
June	4,470	26,500	5,880	24,200
July	4,950	31,500	5,550	29,800
August	4,500	36,000	5,670	35,500
September	4,420	40,400	5,420	40,900

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Excludes byproduct ores.

TABLE 2  
U.S. PRODUCTION, SHIPMENTS, AND STOCKS OF IRON ORE IN SEPTEMBER<sup>1,2</sup>

(Thousand metric tons)

State	Production		Shipments <sup>3</sup>		Stocks <sup>4</sup>	
	2004	2003	2004	2003	2004	2003
Michigan	1,010	1,070	1,390	1,060	1,320	1,550
Minnesota	3,420	2,810	4,030	3,160	2,160	4,270
Total	4,420	3,870	5,420	4,220	3,470	5,820

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Excludes byproduct ore.

<sup>3</sup>Includes rail and vessel.

<sup>4</sup>Includes mines, plants, and loading docks.

TABLE 3  
CANADA: SHIPMENTS OF IRON ORE<sup>1</sup>

(Thousand dry metric tons)

Period	Newfoundland	Quebec	British Columbia	Total
2003:				
August	1,530	1,100	6	2,630
September	1,710	1,240	7	2,950
October	2,080	1,500	6	3,580
November	2,260	1,190	5	3,450
December	1,740	1,060	6	2,800
Year total	19,800	13,300	69	33,200
2004:				
January	1,150	839	5	1,990
February	1,070	589	7	1,660
March	1,250	1,030	6	2,290
April	1,650	858	5	2,520
May	1,920	1,740	7	3,660
June	1,970	981	8	2,960
July	1,710	1,380	10	3,110
August	698	1,120	8	1,830

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Natural Resources Canada.

TABLE 4  
CONSUMPTION AND STOCKS OF IRON ORE AND BLAST FURNACE PRODUCTION OF  
HOT METAL AT U.S. IRON AND STEEL PLANTS<sup>1,2</sup>

(Thousand metric tons)

	Consumption of ores and agglomerates, January <sup>3</sup>			
Consumption by source	2004	2003		
United States ores	4,670	3,780		
Canadian ores	401	428		
Foreign ores	439	707		
Total	5,510	4,920		
Consumption by process				
Blast furnaces	5,010	4,370		
Steel furnaces	3	39		
Agglomerating plants <sup>4</sup>	492	510		
Miscellaneous <sup>5</sup>	--	--		
Total	5,510	4,920		
	Stocks of ores and agglomerates, January 31 <sup>3</sup>			
Storage point	2004	2003		
Furnace yards	NA	11,100		
Receiving/transfer docks	NA	1,430		
Total consumer	11,700	12,600		
	Blast furnace production of hot metal			
	September		January-September	
	2004	2003	2004	2003
Hot metal and pig iron produced in blast furnaces	3,460	2,980	30,600	29,200
No. of blast furnaces operating on the last day of the month	NA	30	XX	XX

NA Not available. XX Not applicable. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Data after January 2004 is not available at the time of publication.

<sup>4</sup>Iron ore and iron ore concentrates consumed in agglomerating plants not located at the mine or plant site.

<sup>5</sup>Sold to nonreporting companies or used for purposes not listed.

Sources: American Iron Ore Association (consumption of iron ore 2003) and American Iron and Steel Institute (production of hot metal and pig iron).

TABLE 5  
U.S. EXPORTS OF IRON ORE, BY COUNTRY OF DESTINATION AND TYPE<sup>1,2</sup>

(Thousand metric tons)

Country of destination and type of product	2003 4th quarter	2004			
		1st quarter	2nd quarter	July	August
Canada	1,700	958	2,860	913	766
China	74	59	83	71	--
Mexico	1	1	(3)	(3)	1
Slovakia	--	--	53	108	--
Trinidad and Tobago	--	--	--	--	29
Yugoslavia	--	--	52	--	--
Other	2	1	1	(3)	(3)
Total	1,780	1,020	3,050	1,090	796
Pellets	1,780	1,020	2,960	1,020	762
Concentrates	1	2	19	1	1
Direct shipping ores	2	(3)	65	75	33
Other	3	1	2	(3)	(3)
Total	1,780	1,020	3,050	1,090	796

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE, BY COUNTRY AND TYPE<sup>1,2</sup>  
(Exclusive of ore containing 20% or more manganese)

Country of origin and type of product	2004					2003
	August		Year to date			January-August
	Thousand metric tons	Value <sup>3</sup> (thousand dollars)	Thousand metric tons	Value <sup>3</sup> (thousand dollars)	Value <sup>3</sup> (dollars per ton)	
Australia	--	--	(4)	24	54.15	128
Brazil	381	9,100	3,310	89,600	27.09	3,430
Canada	410	14,400	3,870	128,000	33.15	4,250
Chile	--	--	107	2,810	26.23	238
Finland	--	--	8	332	42.57	9
Mexico	23	667	49	1,220	24.84	24
Norway	--	--	--	--	--	4
Peru	--	--	32	578	18.05	42
South Africa	--	--	104	4,100	39.29	--
Spain	--	--	(4)	3	39.91	--
Sweden	--	--	60	1,930	32.46	--
Venezuela	--	--	56	10,500	188.39	21
Total	814	24,200	7,600	240,000	31.52	8,150
Concentrates	43	671	528	11,800	22.31	647
Coarse ores	--	--	4	153	39.43	24
Fine ores	403	9,730	2,050	46,700	22.85	1,440
Pellets	368	13,800	4,930	169,000	34.35	5,740
Briquettes	--	--	56	10,500	188.39	--
Other agglomerates	--	--	30	728	24.47	293
Roasted pyrites	--	--	4	207	48.83	7
Total	814	24,200	7,600	240,000	31.52	8,150

-- Zero.

<sup>1</sup>Data, with the exception of the dollars per ton column, are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Customs value. Excludes international freight and insurance charges.

<sup>4</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE IN AUGUST 2004<sup>1,2</sup>  
(Exclusive of ore containing 20% or more manganese)

(Thousand metric tons)

Country of origin	Type of product						Total
	Concentrates	Coarse ores	Fine ores	Pellets	Briquettes and other agglomerates	Roasted pyrites	
Brazil	--	--	309	72	--	--	381
Canada	43	--	71	296	--	--	410
Mexico	--	--	23	--	--	--	23
Total	43	--	403	368	--	--	814

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

Source: U.S. Census Bureau.

TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF PELLETS, BY COUNTRY<sup>1</sup>

Country of origin	2004					2003
	August		Year to date			January-August
	Thousand metric tons	Value <sup>2</sup> (thousand dollars)	Thousand metric tons	Value <sup>2</sup> (thousand dollars)	Value <sup>2</sup> (dollars per ton)	Thousand metric tons
Brazil	72	2,620	1,750	58,200	33.21	2,040
Canada	296	11,100	3,180	111,000	34.98	3,710
Total	368	13,800	4,930	169,000	34.35	5,740

<sup>1</sup>Data, with the exception of the dollars per ton column, are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Customs value. Excludes international freight and insurance charges.

Source: U.S. Census Bureau.

TABLE 9  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE,  
BY CUSTOMS DISTRICT<sup>1,2</sup>  
(Exclusive of ore containing 20% or more manganese)

(Thousand metric tons)

Customs district (code no.)	August	January-August	
	2004	2004	2003
Baltimore, MD (13)	289	2,580	2,270
Buffalo, NY (09)	1	4	6
Charleston, SC (16)	--	(3)	106
Chicago, IL (39)	250	731	613
Cleveland, OH (41)	84	1,550	2,070
Detroit, MI (38)	24	123	152
Great Falls, MT (33)	--	(3)	--
Houston - Galveston, TX (53)	--	28	37
Los Angeles, CA (27)	--	--	(3)
Mobile, AL (19)	--	80	75
New Orleans, LA (20)	165	2,500	2,790
Nogales, AZ (26)	--	(3)	--
Ogdensburg, NY (07)	--	--	1
Philadelphia, PA (11)	--	4	28
Total	814	7,600	8,150

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits;  
may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 10  
U.S. IMPORTS FOR CONSUMPTION OF PELLETS,  
BY CUSTOMS DISTRICT<sup>1</sup>

(Thousand metric tons)

Customs district (code no.)	August	January-August	
	2004	2004	2003
Baltimore, MD (13)	141	1,060	832
Charleston, SC (16)	--	--	105
Chicago, IL (39)	46	188	--
Cleveland, OH (41)	84	1,520	2,070
Detroit, MI (38)	25	123	152
Houston-Galveston, TX (53)	--	28	37
Mobile, AL (19)	--	--	59
New Orleans, LA (20)	72	2,020	2,480
Total	368	4,930	5,740

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits;  
may not add to totals shown.

Source: U.S. Census Bureau.